What is claimed is:

1. A method for constructing a circuit for controlling an electromagnetic actuator, which electromagnetic actuator includes a coil having associated therewith a resistance R_1 and an inductance L_1, comprising:

modeling the electromagnetic actuator with an equation;

calculating at least one resistance R_{2j} and at least one inductance L_{2j}, each of which is associated with at least one theoretical coil electrically connected to and physically remote from the electromagnetic actuator, wherein the resistance R_{2j} and the inductance L_{2j} are calculated by satisfying the equation using at least the function:

$$I_F(t) = \exp^{\frac{\omega_{21}\, t}{\sum_j \left[\exp\left(\omega_{22\,j}\, t - \varphi_j^{open}\right)\right] + \sum_j \left[\exp\left(\omega_{22\,j}\, t - \varphi_j^{close}\right)\right]}}$$

where ω_{21} equals $2\pi R_1/L_1$, ω_{22j} equals $2\pi R_{2j}/L_{2j}$; φ_j^{open} is a switching on phase, φ_j^{close} is a switching off phase, and j identifies a particular theoretical coil; and

electrically connecting current supply means to the coil of the electromagnetic actuator, which current supply means are configured to substantially simulate the electrical effect of each theoretical coil having the calculated resistance R_{2j} and the calculated inductance L_{2j}.

2. The method of claim 1, wherein j = 1 and the resistance R_{2j} and the inductance L_{2j} are calculated by satisfying the equation using at least the function:

$$I_F(t) = e^{\frac{\omega_{21} t}{\exp(\omega_{22} t)}}$$

3. The method of claim 1, wherein the equation is a differential equation.

4. The method of claim 3, wherein the equation is a second-order non-homogeneous ordinary differential equation.

5. The method of claim 1, wherein the current supply means includes j number of coils, each having a resistance equal to substantially the calculated resistance R_{2j} and each having an inductance equal to substantially the calculated inductance L_{2j}.

6. The method of claim 1, wherein the current supply means includes a coil having substantially the sum of each calculated resistance R_{2j} and substantially the sum of each calculated

inductance L_{2j}.

7. The method of claim 1, wherein the current supply means includes computer code.

8. The method of claim 7, wherein the computer code includes at least one of: (a) software; and (b) firmware.

9. The method of claim 1, further comprising determining the resistance R_1 and the inductance L_1.

10. The method of claim 9, wherein the step of determining the resistance R_1 and the inductance L_1 comprises measuring the resistance R_1 and the inductance L_1.

11. The method of claim 1, wherein each resistance R_{2j} and each inductance L_{2j} is calculated by selecting a desired value for one and determining a value for the other which satisfies the equality ω_{22j} equals $2\pi R_{2j}/L_{2j}$.

12. The method of claim 1, wherein each resistance R_{2j} and each inductance L_{2j} is calculated based upon a desired time-dependent action of the electromagnetic actuator.

13. The method of claim 1, wherein each resistance R_{2j} and each inductance L_{2j} is calculated based upon a desired frequency-dependent action of the electromagnetic actuator.

14. A method for designing a circuit for controlling an electromagnetic actuator, which electromagnetic actuator includes a coil having associated therewith a resistance R_1 and an inductance L_1, comprising:

modeling the electromagnetic actuator with an equation; and

calculating at least one resistance R_{2j} and at least one inductance L_{2j}, each of which is associated with at least one theoretical coil electrically connected to and physically remote from the electromagnetic actuator, wherein the resistance R_{2j} and the inductance L_{2j} are calculated by satisfying the equation using at least the function:

$$I_F(t) = \exp^{\frac{\omega_{21}t}{\sum_j\left[\exp\left(\omega_{22j}t-\varphi_j^{open}\right)\right]+\sum_j\left[\exp\left(\omega_{22j}t-\varphi_j^{close}\right)\right]}}$$

where ω_{21} equals $2\pi R_1/L_1$, ω_{22j} equals $2\pi R_{2j}/L_{2j}$; φ_j^{open} is a switching on phase, φ_j^{close} is a switching off phase, and j identifies a particular theoretical coil.

15. The method of claim 14, wherein $j = 1$ and the resistance R_{2j} and the inductance L_{2j} are calculated by satisfying the equation using at least the function:

$$I_F(t) = e^{\frac{\omega_{21} t}{\exp(\omega_{22} t)}}$$

16. The method of claim 14, wherein the equation is a differential equation.

17. The method of claim 16, wherein the equation is a second-order non-homogeneous ordinary differential equation.

18. The method of claim 14, further comprising determining the resistance R_1 and the inductance L_1.

19. The method of claim 18, wherein the step of determining the resistance R_1 and the inductance L_1 comprises measuring the resistance R_1 and the inductance L_1.

20. The method of claim 14, wherein each resistance R_{2j} and each inductance L_{2j} is calculated by selecting a desired value for one and determining a value for the other which satisfies the equality ω_{22j} equals $2\pi R_{2j}/L_{2j}$.

21. The method of claim 14, wherein each resistance R_{2j} and each inductance L_{2j} is calculated based upon a desired time-dependent action of the electromagnetic actuator.

22. The method of claim 14, wherein each resistance R_{2j} and each inductance L_{2j} is calculated based upon a desired frequency-dependent action of the electromagnetic actuator.